

PAN AMERICAN
fisherman

ESTABLISHED 1947

APRIL

1957



In this issue... SHARKS OF THE CENTRAL PACIFIC
ANCHOVIES IN CALIFORNIA WATERS



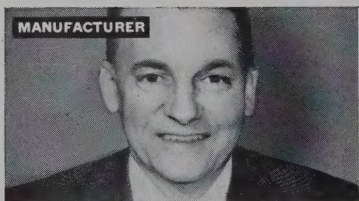
BURBANK TEST PILOT *says:*

"Experimenting is my business, but when I shop I don't take risks..."

FPG

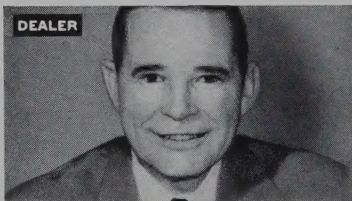
I'm always satisfied most with
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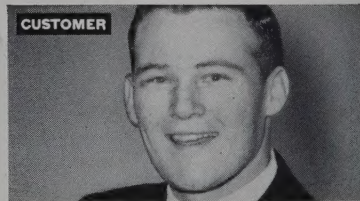
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SAN DIEGO, CALIFORNIA

LETTERS TO THE EDITOR

Insurance Problems

Dear Sir:

In your December issue was an article by A. L. Brosio on insurance. I do not question Al's sincerity in discussing insurance problems; but the pictures shown with the article were not appropriate.

For example, you have the photograph of the 80 ft. purse seiner "Western Explorer" shown as "One that was lost." This is the vessel that I personally brought to the East Coast in 1938 to engage in the tuna fishing of New England. It was later sold to the Newfoundland Government at the outbreak of World War II. This vessel had a marked history in participating in the war under the British flag, including the Dunkirk evacuation. She later returned to Newfoundland after the war and has been busily engaged in fishing in that area ever since. So you see the Western Explorer as shown has not been lost and is still making history in the fishing of the East Coast.

The other vessel you have shown is the "Western Clipper" which is entitled "One that was salvaged." Although the Western Clipper was taken off the beach, it was a total loss and the underwriters paid accordingly. Other parties salvaged the hull and the vessel is now operating in Alaska; however, for insurance purposes, it would have been better to note that this vessel was a total loss at the time of this accident.

I am a bit concerned about the publicity that is being issued on marine insurance, as this material seems to justify the increased premiums on marine insurance. We do not fully agree with this trend of thought and we have reasons to believe we are correct as our insurance program does not follow the thinking of so many in California.

Proof of this is the fact that we are paying in many cases one-half as much insurance premium as other fishing vessels.

Hervey Petrich,
Western Boat Building Co.
Tacoma 1, Washington

PAN AMERICAN fisherman

SANDO PUBLICATIONS

KEllogg 8-5441

Orange Savings Building

ORANGE, CALIFORNIA

VOL. II - No. 9

APRIL

1957

BRIANT SANDO—Editor and Publisher

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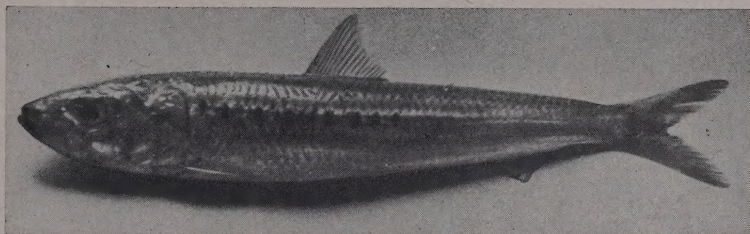
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Pan American Fisherman is published monthly • Business office—Orange Savings Building, Orange, California, telephone KEllogg 8-5441. Subscription rates in the United States and possessions, one year \$3.00; two years \$5.00; five years \$10.00. Canada \$4.00 per year; all other countries \$5.00 per year. Current copies 50c each; back numbers \$1.00 each when available. Entered as second class matter March 12, 1953, at the Post Office at Orange, California, under the Act of March 3, 1879. Postmaster: Form 3579 requested.



STATUS NOT SO BAD

Anchovies In California Waters

DESPITE fishing pressure that has steadily increased since 1951, there are now more anchovies in Southern California waters than you can scoop up in a season of heavy netting. This report should make pleasant news for commercial fishermen, ocean sport fishermen and researchers, although biologists temper their enthusiasm on a note of caution.

While there is an abundance of anchovies, they do not appear to be as old, on the average, as they once were. Biologists consider this a warning sign that a downward population fluctuation may be indicated.

Agencies taking part in the California Cooperative Oceanic Fisheries Investigations program, now only four years old, have found that fishing pressure hasn't hurt the southern anchovy population at all.

Nature Is Kind

From 1951 to 1955 commercial landings of anchovies in Southern California (Point Concepcion to San Diego) amounted to 80,204 tons and the live bait catch to 31,152 tons, a total of more than 111,000 tons. But the evidence shows that nature has provided the anchovy with four consecutive years (1951-1954) in which survival of its spawn was abundant enough to more than compensate for all deaths occurring during this period.

For instance, the number of larval anchovies taken in the area from Point Concepcion to Point San Juanico, Baja California, has doubled from 1951 to 1955. This means that either the spawning population has doubled or there was a decided increase in the survival rate of eggs and newly hatched larvae over previous years.

By DANIEL J. MILLER

Marine Biologist,
Terminal Island, California

More Schools Sighted

That the spawning population actually has increased is substantiated by data from other sources. Results of the State's aerial survey show a marked increase in the number of schools sighted in 1956 over the previous two years in the 500-mile stretch between Morro Bay and Punta Baja in Baja California.

The same cannot be said for the anchovy population off Monterey and San Francisco. There was a peak concentration in Central California in 1952, but since that date only limited numbers have appeared. Apparently, total mortality (including fishing mortality) was greater than the addition of young fish into the population. Fish born in early 1954 contributed to a slight comeback of the anchovy in Central California in 1955, but this did not compare to the increase in the southern part of the State.

Between 1951 and 1955 only 37,633 tons were landed at Monterey and San Francisco.

Did They Move South?

Does this mean that anchovies may have moved to Southern California in early 1953 when they "disappeared" from Central California waters? Or does it mean that heavy fishing, coupled with poor survival of eggs and larvae, lowered the population to a level where it was no longer economically feasible to continue fishing? Can anchovy populations be ex-

pected to vary considerably in abundance from natural causes alone and will these variations occur, fishing or not? Also, will a continual state yearly catch of 35,000 tons *never* endanger Southern California stocks?

Some of these questions can be answered now, but others await the results of continuing and intensive research.

Boundary at Cape

Samplings from 1952 to 1955 proved that the anchovies did not move to Southern California from the central area. In fact, up to now all information on the fish points to the fact that there is a marked separation between the stocks to the north and south of Cape San Martin, southern Monterey County, and that the two "populations" should be considered separately, especially concerning problems of fishery management.

Fortunately, laws prevent uncontrolled take of anchovies in California waters. The Fish and Game Commission has steadfastly denied permits to reduce whole anchovies into meal and oil, and in 1954 the Legislature enacted a law setting a maximum yearly take. Up to now this legislation has not had an effect upon the anchovy population, for the catch has been less than the maximum set by law.

The economic demand for anchovies has lessened considerably since the peak demand year of 1953, and the catch is not expected to reach the 35,000-ton bag limit allowed for the period between April 1, 1956, and March 31, 1957. Should new markets for anchovy products arise, the abundant stocks now available in Southern California could furnish the desired fish—at least for a year. *



Figure 2.—Longline-caught yellowfin tuna badly damaged by sharks.

SHARKS OF THE CENTRAL PACIFIC...

Nuisance or Resource?

By **DONALD W. STRASBURG**

Fishery Research Biologist
Pacific Oceanic Fishery Investigations
U.S. Fish and Wildlife Service
Honolulu, T. H.

IN MANY parts of the Pacific Ocean, especially in the tropics, fishing and baiting operations are either hampered or made dangerous by the presence of sharks. The shark nuisance may result in loss or damage to the catch, time wasted in untangling or repairing gear, and in rare cases in injury to personnel.

For the past several years the Pacific Oceanic Fishery Investigations of the U.S. Fish and Wildlife Service, with headquarters in Honolulu, has been using longline gear to sample the tuna resources of the Pacific. During the period 1952-1955, POFI longlined from just south of the Aleutian Islands to the Society Islands, and from the west coast of the United States to 180°, the International Date Line.

Besides tuna, marlin, and a few other food fish the catch contained over 6,000 sharks. Of these, about

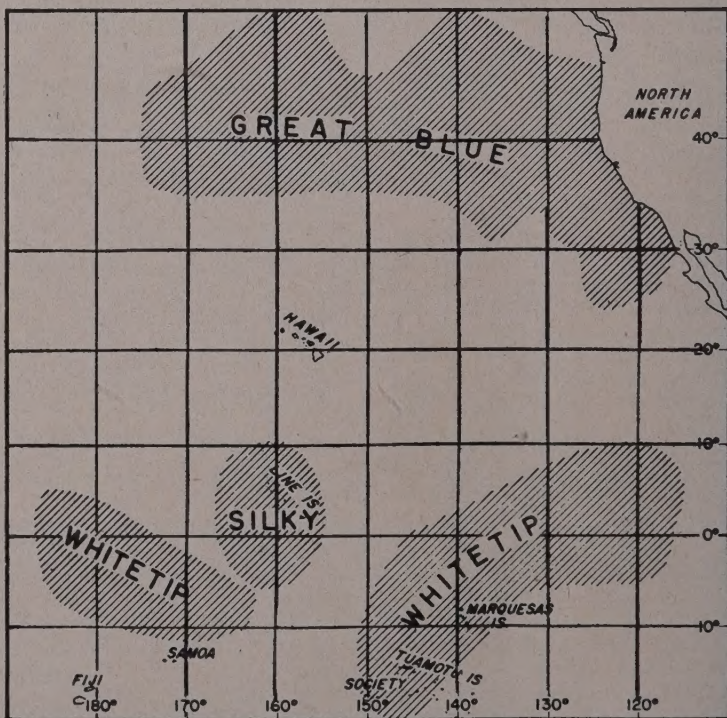


Figure 1.—The central Pacific Ocean showing regions in which FWS found sharks to be abundant and indicating the dominant species.

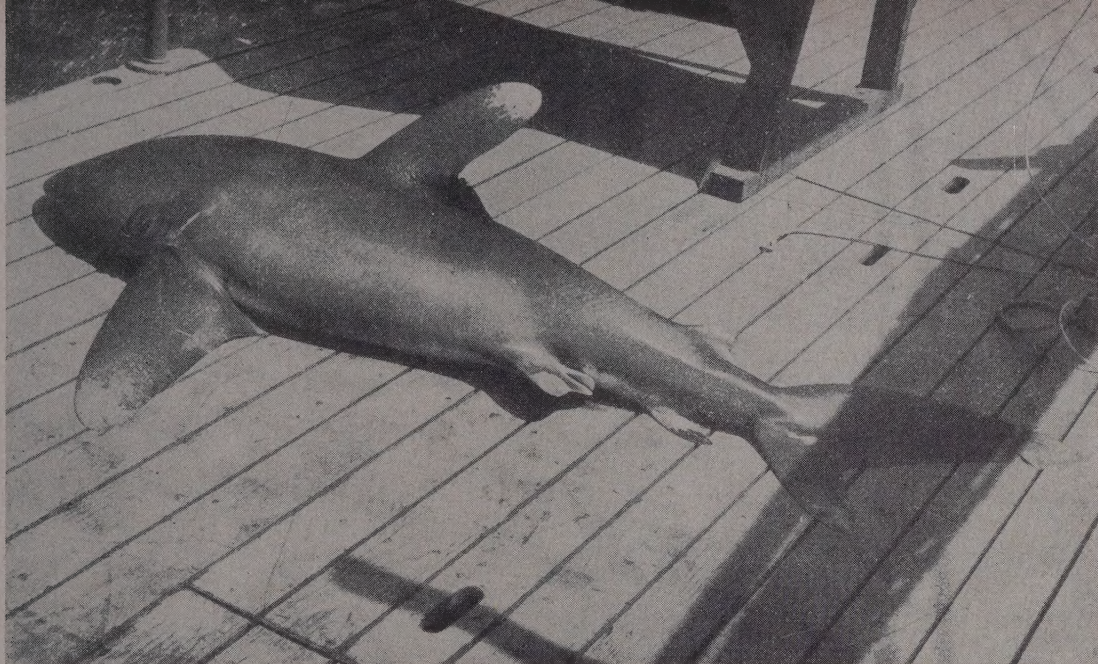


Figure 3.—Whitetip shark caught in equatorial waters by POFL vessel John R. Manning. Note white-tipped fins and heavy body.

2,500 were great blues, 2,200 were silkies, and 1200 were whitetips. The names for the first and last of these are derived from their color, the great blue being blue above and white below, and the whitetip having white-tipped fins. The silky shark's name comes from its skin which is smooth compared to the sandpaper-like covering of other sharks. Besides these three common sharks nine other species including

hammerheads, threshers, and makos were taken.

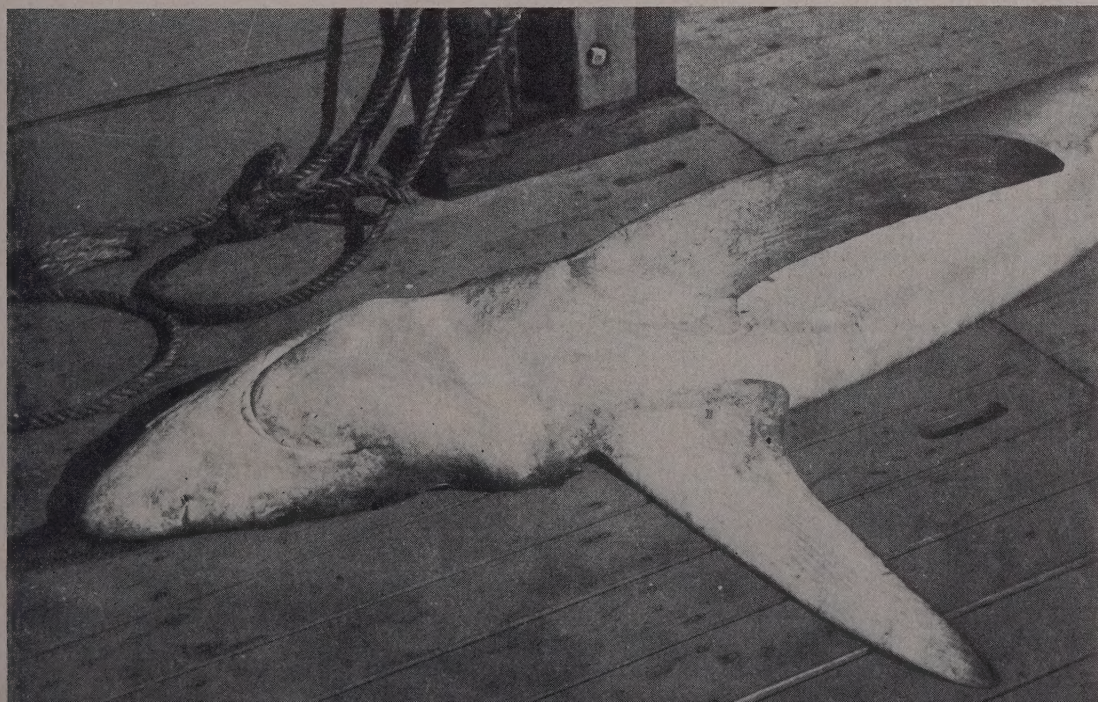
The great blue was not only the most abundant but also the most widely distributed shark captured. Although it ranged from the Aleutians to the Society Islands large catches were made only in the north, particularly in the waters immediately off the U.S. west coast (fig. 1). Great blues were pests in that they fouled lines and tangled nets, but

they seemed to do little damage to the tuna catch. Usually less than 1% of the catch was affected, and generally the damaged tuna were only partly eaten.

As in all sharks, male great blues can be told from females by their possession of finger-like "claspers" on the pelvic fins. Records were kept of the number of males and females captured each day, and it was found

(Continued on page 14)

Figure 4.—Great blue shark 8½ feet in length. Taken near Equator by the John R. Manning.



TO BE IMPROVED...

Idaho's Salmon River

IDAHO'S fabulous Salmon River, the "River of No Return," haunt of "mountain men" and hardy fishermen, "top of the stream, for part of the Columbia River salmon and steelhead trout, and upper limit of the vast \$23,000,000 Columbia River salmon program, is due for special attention this year, according to Fred A. Seaton, Secretary of the Interior.

Initial funds up to \$200,000 for the improvement of the Salmon River and possibly the Clearwater River, for salmon and steelhead production, are available this year for expenditure on approved projects.

A preliminary survey of needed improvements on the Salmon will begin soon in cooperation with the Idaho Department of Fish and Game under the Columbia River Fisheries Development program. This is a cooperative program with the states of Oregon, Washington and Idaho.

At the present time there are no dams on the Salmon River which interfere with the runs but one dam is under construction on the Snake River below the mouth of the Salmon. This is at Ice Harbor, not far from where the Snake joins the Columbia. There are possibilities, however, of major dams at the Lower Monumental, Little Goose, and Lower Granite sites, all below the mouth of the Salmon.

On the Columbia River itself below the mouth of the Snake River is the recently constructed McNary Dam, the proposed John Day Dam, The Dalles Dam now under construction and the Bonneville Dam which has been in existence since 1938. On the Columbia, also, are Grand Coulee and Chief Joseph dams, 600 miles from the sea, too high for fish ladders or elevators. Chief Joseph marks the upper limit of the salmon run on the main river.

In 1949, when it was evident that dams constructed or proposed would seriously damage the salmon and sea-run trout fisheries, Congress authorized that current salmon program which, when completed, will include 30 hatcheries (seven of which are in existence and being remodeled), more than 30 fishways and numerous stream clearance projects. These developments are designed to hold sal-

mon and steelhead production at the highest possible level, although maintenance of the current production of 32,000,000 pounds annually will also depend on continued availability of upriver spawning areas.

Of the 30 hatcheries, eight will be operated by the Fish and Wildlife Service, 13 by Oregon, and nine by the state of Washington. The total cost of the entire program will be about \$23,000,000 of which \$11,451,000 had been made available by the Congress before July 1, 1956. Of this amount, Washington has been apportioned \$4,291,000; Oregon \$3,404,000, and the Fish and Wildlife Service, \$3,756,000. For the 1957 fiscal year \$1,400,000 is available for construction and \$1,250,000 for operation and maintenance.

Under the program the natural spawning beds, like those of the Salmon River and elsewhere, will be utilized to the fullest extent. Streams, which because of numerous natural obstructions have not supported salmon runs for years have been cleared and new runs established. Hatcheries supply young fish to supplement the natural spawning results and for the reestablishment of runs. Fish ladders have been installed over dams and waterfalls. Fish screens have been placed at irrigation headgates to prevent loss of downstream migrants. Similar activities now will be undertaken in Idaho streams accessible to salmon and steelhead trout.

Special problems relative to fish ladders and screens are being studied by biologists who are improving fishway design and developing electrical guidance apparatus which, when perfected, will increase the efficiency of the fishways and drastically cut the losses in downstream migrants. These studies are among regular and continuing Service programs in cooperation with the Corps of Engineers and the fisheries agencies of Oregon, Washington, and Idaho. *



Japanese Fisheries Arrangements

According to a dispatch from Tokyo, Japanese firms continue their attempts to expand their fishing activities through cooperative agreements with other countries. There have been two developments in this respect recently, one of which was the establishment of an Iranian-Japanese joint company and the other a proposed Thai-Japanese cooperative venture.

The Iranian proposal is reported to be in the final stages, whereby a joint company will be established in Abadan, to be known as the Persian Gulf Fisheries Company, with a capital of approximately \$400,000, of which Iran will furnish two-thirds. The Japanese company involved is the Japan Southern Fisheries Development Company, which in addition to supplying one-third of the capital will supply technical assistance and equipment. Planned in the venture are cold storage, processing and canning plants at Abadan, Ahwaz and Teheran. The company will specialize in sea-bream, pompano, shrimp, Spanish mackerel and tuna.

The second proposal, which is still in initial stages, involves the establishment of a joint Japanese-Thai firm. The proposed new firm will establish a fishing base on Tarutao Island if a fish resources survey now being conducted in the Indian Ocean by a Japanese survey ship shows that such a venture would be commercially feasible. If resources warrant, the new firm will establish refrigeration plants and will be capitalized at one billion yen.

Those Purple Geese

Perhaps you've "never seen a purple cow and never hope to see one," but any day, especially if you're journeying through the northern part of North America, you're apt to see a purple goose.

Fish and game men, according to the National Automobile Club, have been taking white geese, dunking them into vats filled with purple, green, pink, and yellow dyes, and then turning the geese loose to hit that migratory trail. Informed observers then watch for the colors going by, report to the men back at the base, and thus the men back at the base learn all about where the geese go when they're gone.

So much for one of the more colorful operations of our men of the fish and game.

A TUNAUVERSE CONTEST

Canned Tuna Judgment Day

THE annual tuna cutting, as it is officially termed, was held in early April under the sponsorship of the California Fish Cannery Association at the Lafayette Hotel in Long Beach, California.

Intent groups of men and women, armed with forks and napkins, pens and notepads, picked and sniffed their way down long lines of tables on which 158 plates and opened cans of tuna selected at random from this year's pack were spaced and classified.

These people were the 35 judges from all sections of California, marking down their opinions of the various exhibits. This was no casual inspection—they all stopped, looked and sniffed.

"We judge appearance, cleaning, color, texture, oil content, odor and flavor, said Donald A. White, chemist for the laboratory of the National Cannery Association in Berkeley.

Standards of tuna were not subject to the whims of variable human eyes and noses alone. There also was a battery of coldly analytical tuna judging machines, including a press for finding out how much fish really is in the can, a screen to determine flake size, and a color comparator with pink and white slides.

Four types of tuna were on display: albacore, yellowfin, bluefin, and skipjack . . . and in three different forms—solid, chunk and flake. Brand name identification was eliminated through the use of code numbers on the samples.

After the judging was concluded, members of the Fish Cannery Association and invited guests from various segments of the industry were admitted to see the exhibits. Then everyone, including the judges, enjoyed a meal at the hotel which featured crab cocktail followed by broiled swordfish.

Going Up!

The Board of Harbor Commissioners has approved renewal of two leases with the 12 Municipal Wholesale Fish Market operators in Port of Los Angeles for 1957 that will increase rentals of the 12 stalls from \$33,624 annually to \$45,000.

An agreement was reached with the operators, according to Bernard J. Caughlin, general manager, that the leases may be renewed for the same figure in 1958. Renewal in 1959-61 will be at an annual gross rate of \$55,000 annually and the 1961-66 period \$65,000.



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E B B 'n FLOW

FWS Reorganization

The Senate has confirmed the appointment of Arnie J. Suomelo as Commissioner of Fish and Wildlife, so the long discussed reorganization of the Fish and Wildlife Service is now under way.

Assistant Secretary of the Interior Leffler has announced the appointment of Donald McKernan as Director of the new Bureau of Commercial Fisheries, with Andrew W. Anderson as Assistant Director. Mr. Leffler also announced the appointment of Robert H. Johnson of Massachusetts to the position of Special Assistant to Commissioner Suomela.

Mexico's Canned Sardine Market

Four canneries, all located in or near Ensenada, Baja California, pack California sardines for consumption within Mexico. Estimated production runs about 250,000 cases annually. In addition, two small canneries in Veracruz pack Spanish mackerel and tarpon under the label of sardines, but this production is insignificant.

Mexican consumption of sardines is estimated to be about 260,000 standard cases annually. Of this amount, about 95% is produced locally and 5% is imported. The imported pack is almost entirely from Europe and consists of sardines in olive oil. The local pack is divided about equally between tomato sauce and natural mediums.

Duck Stamp Sales

California led the United States in the number of migratory bird hunting stamp sales during the last year, reports the National Automobile Club.

This State had a total of 180,173 stamps sold. The next largest number was sold in Texas, which had 169,229.

Of the grand total of 2,369,940 stamps sold throughout the United States, the Mississippi Flyway region accounting for 1,019,145, the Central Flyway had 523,630, the Pacific Flyway 430,597 and the Atlantic Flyway 387,035. The remaining 9,533 stamps were sold to collectors.

Electronic Fish Finder

To help make fishing results more certain, Radio Corporation of America has brought out a device which does the next best thing to putting fish on the hook. It finds them electronically.

RCA's new electronic fish finder is designed to ferret out everything from sardines to whales, in depths of 18 inches to 500 feet. The portable device notifies the man behind the rod about schools of fish or a single truant.

The instrument also identifies the unsuspecting fish by size and type on an indicator scope . . . and helps locate the most likely spot to dangle the bait. It works in fresh or salt water and is designed for use aboard pleasure craft or small commercial fishing vessels.

The indicator unit measures less than a foot square, weighs approximately 26 pounds and may be obtained handle equipped to allow users to wander the length of the craft and still know the best fishing spots.

Agreement on U.S.-Canadian Fishery Regulations

United States and Canadian conferees have recommended coordinated regulations in the oceanic salmon and certain other fisheries in the Pacific Ocean. Nets in off-shore salmon fishing will not be permitted. The spring or chinook salmon troll fishing season will open not earlier than April 15 and will close October 31. The June 15 opening date on trolling for silvers or cohos will remain unchanged. Troll-caught chinook salmon will be required to be 26 inches minimum length or an equivalent minimum weight. In the petrale sole fishery, a uniform closed season from December 20 to April 15 will be established.

The meeting represents a long step forward in efforts to conserve Pacific Coast fisheries. Hitherto, the measures of Washington, Oregon and California have been coordinated through the Pacific Marine Fisheries Commission. The recommendations of the

conference when approved by the Legislatures and administrative action taken by Canada will mean that regulations along the entire Pacific Coast will be coordinated.

White's Marine Diesels

A new bulletin explains an improved line of four-cycle, six and eight cylinder, naturally aspirated or supercharged diesel engines. Especially designed for dependable service in large fishing boats and work boats, performance of the improved models has been well received.

The colorful eight page bulletin No. 109 shows dimension drawings, photographs, performance charts and explains in detail construction features of the engines. Free upon request to Harry Clark, Advertising Manager, White Diesel Engine Division, Springfield, Ohio.

Production of Metal Cans Sets Record

American Can Company reports that last year production of metal cans rose to a record 41.8 billion units. This was substantially higher than previous estimates and represents a 1956 industry-wide production 6.7% greater than that of 1955.

Present indications are that 1957 production of metal cans will better the volume reached last year, according to a company spokesman who pointed out that industry production of metal cans has set new peaks in each of the past five years.

Mercedes-Benz Diesel

A complete line of Mercedes-Benz marine diesels is now being handled by the In-Mar Co., well-known west coast distributor of marine and industrial engines.

These record-setting engines are now on display at the In-Mar showroom, 607 W. "B" Street in Wilmington, California, where extensive new service facilities are also located. According to general manager Pieter Bykerk, Mercedes-Benz users will be accommodated at the new headquarters with a complete parts inventory and a specialized maintenance service by In-Mar engineers and mechanics.

HIGHER IN 1956

FISH CANNERY PRODUCTION

Increases in the packs of tuna, Alaska salmon, Maine sardines and Pacific Coast mackerel are largely responsible for the 10 percent increase in the 1956 production of fish canned for human food, states the U. S. Department of the Interior.

Fish and Wildlife Service records show that in 1956 there were 650,000,000 pounds of fishery products packed for human use compared with 588,000,000 pounds in 1955.

The tuna pack of 227 million pounds set a new record, beating the 1955 pack by 31 million pounds. The Alaska salmon pack was 144 million pounds, 30 million pounds higher than in 1955 but the Puget Sound salmon fisheries produced 20 million pounds less than in the year previous. The Puget Sound pack was 23 million pounds.

A larger run of red salmon in western and central Alaska and a

better-than-usual run of chum salmon in central and southeastern Alaska were responsible for the gains made in the Alaska fisheries. The Puget Sound area experienced its usual "even-year absence" of pink salmon which, because of their two-year cycle, historically have large runs on odd-numbered years and almost no fish on even ones.

Pacific Coast firms engaged in canning Pacific and jack mackerel produced 50 million pounds in 1956, twice the 1955 mark. This heavy pack was due to a great extent to the extremely low sardine catch and the cannery turned to mackerel as an alternative. The Pacific sardine pack of 32 million pounds was just half what it was in 1955. The Maine sardine cannery had a much better year in 1956, canning 45 million pounds, an increase of 19 million over 1955.

South Atlantic and Gulf oyster canning of 4.3 million pounds was down

considerably below the 1955 mark of 5.3 million pounds. Shrimp canners, with 13.8 million pounds in 1956 were slightly ahead of the previous year.

Situation Normal

It is nice to know that things are normal in Ireland. The Fishing News reports the following which we pass on without comment:

"Police-sergeant Kieran Casey of Culdaff was tossed into the water by County Donegal fishermen when he tried to apprehend them, it was said in the Central Criminal Court, Dublin, when the four fishermen were charged with attempting to drown the sergeant.

"Casey had driven the Fishery Inspector to the south of the Culdaff River where there were four men drawing a net towards a boat. Sergeant Casey, a non-swimmer, tackled them but he was thrown overboard into the meshes of the net. He was in hospital for several days. The accused were bound over on their own bail of £25 to keep the peace for two years."



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NOW 150 YEARS OLD

The Coast and Geodetic Survey

ONE HUNDRED and fifty years ago on February 10, Congress passed and President Thomas Jefferson signed into law a bill creating the Coast and Geodetic Survey.

The bureau began as a mere "survey of the coast," but now conducts as well the basic land surveys of continental United States, its territories and possessions. All American boundaries, from farm fences to the international borders, are based on starting points fixed by the Survey. In the fiscal year 1956 it distributed 43 million charts, most of them aeronautical. The bureau publishes tide tables and studies of currents, used by mariners and fishermen. In addition it studies earthquakes and their effects, and the earth's magnetism and gravity.

At a banquet inaugurating celebration of the sesquicentennial, President Eisenhower and Secretary of Commerce Sinclair Weeks praised the agency's 150 years of service. It is one of the oldest units in the Commerce Department.

Although normally a peaceful scientific agency, the bureau has been involved in all American wars since 1807. In World War II, its experts made thousands of "target" charts of military objectives at the request of the Army Air Forces.

Earthquake Wave Coming

A century and a half ago the Survey's job was to save lives and property by preventing shipwrecks. One of its modern achievements is preventing such losses from earthquake sea waves. In 1946 a seismic wave, or tsunami, took 173 lives and created property damage of \$25 million in the Hawaiian Islands alone. In November, 1952, after the Survey had established its sea wave warning system, another great wave struck the islands. This time no lives were lost, and the property damage was estimated at \$800,000.

The Survey operates the warning service from its magnetic observatory near Honolulu. No scientist professes to be able to predict quakes, but once a shock occurs somewhere around the rim of the Pacific there is time to predict whether it will create a dangerous swell a thousand

miles away. The Hawaiian Islands are especially vulnerable, because of their position and the fact that they are surrounded by deep water in which the waves do not lose their energy.

Speed is vital, because in the ocean sea waves move at from 300 to 500 knots. When a quake occurs, the observatory studies reports from the Survey's own or cooperating seismograph stations, and calculates the epicenter, or point of origin. If the source is in such a location as to make a Pacific sea wave possible, the observatory checks rapidly with the tidal stations in the area to see whether one has actually been created. If the tidal stations do report a wave, the observatory notifies civilian and military authorities.

The Survey and Its Job

The Survey has a fleet of seventeen ships, seven magnetic observatories, two latitude observatories, and thirteen district offices. It maintains many field parties on land. Hikers and mountain climbers know its round bronze markers well. In its 150 years, it has installed nearly 400,000 bench marks for distances above sea level, and more than 150,000 "triangulation stations" for which exact latitude and longitude have been calculated.

The highest and lowest points in the United States are in California, within 100 miles of each other. The Survey, which sent a party to the top, says Mt. Whitney is the highest peak in the United States: 14,495 feet. The lowest point is in Death Valley, 280 feet below sea level.

Mt. McKinley, in Alaska, is the tallest on the North American continent. A figure of 20,320 feet above sea level has been agreed upon by the Coast and Geodetic Survey and the Geologic Survey, both of which made observations there. In the case of inaccessible points such as the two peaks of Mt. McKinley, elevation is calculated by sighting and trigonometric computations.

Sailors Beware

Seguam Pass, between the Bering Sea and the Pacific Ocean, is probably the most dangerous channel in American waters, according to the

Survey. It is between Seguam and Atka Islands in the Aleutian chain.

The word "probably" is used because all the channels through the Aleutians are dangerous. There are severe rip tides, dangerous rocks and sudden squalls, or williwaws. The Aleutian "trench" parallel to the islands on the south is more than 24,000 feet (nearly five miles) deep.

The highest and lowest tides in American waters are in the Bay of Fundy, Maine, where the range is as much as 70 feet. The smallest tidal range is along the Gulf Coast of Florida; the difference between high and low may be six inches.*

Changes Proposed to Fishermen's Protective Act

Senator Warren Magnuson, Chairman of the Senate Committee on Interstate and Foreign Commerce, and Representative Herbert Bonner, Chairman of the House Committee on Merchant Marine and Fisheries, each introduced bills to amend the Act of August 27, 1954, relating to the rights of vessels of the United States on the high seas and in territorial waters of foreign countries.

The purpose of the amendment proposed in S. 1483 and H.R. 5526 is to provide for the reimbursement to the owners of seized vessels all expenses incurred by them as a direct result of such seizures, including expenses incurred by members of the crew for injuries or death arising out of such seizures.

The present law provides that the Secretary of the Treasury reimburse the owners for fines imposed when the amount of such fines are certified by the Secretary of State. The amended law would protect the owners and crews against fines imposed, gear and catch seized, injuries to crew, etc.

Prior to the adoption of the Act in 1954, the fishing industry had no protection when its vessels were seized on the high seas by the agents of other countries, since disputes arising out of such incidents could only be settled between two sovereign nations.

Japanese Visit Russian Fisheries

The National Fisherman's Council, a private organization of independent fishermen, is organizing a team of representatives from the Japanese fishing industry to visit the U.S.S.R. this spring in response to an invitation received last October from the Central Council of the Soviet Food and Industry Union. The team, numbering seven or eight, expects the visit to include (1) a survey of fish conservation facilities, (2) a study of Soviet fishing methods, and (3) an exchange of technical information. The group will spend two months inspecting fishing installations and studying methods in Kamchatka, Sakhalin and the coastal areas of Siberia, and another month in Moscow, a United States Embassy dispatch from Tokyo states.

The Japanese fishing industry is anxious to establish friendlier relations with the Soviet Union on fisheries matters in the hope that some of the unpleasant incidents of the past can be avoided in the future. The Japanese also are handicapped in their relations by a lack of information on the Soviet fishing industry and the extent of conservation being

undertaken, especially in relation to salmon fishing. It is expected that the Japanese will extend an invitation to a similar Soviet group to visit Japan.

Japanese Fishing Company Branch in U.S.

According to a dispatch from Tokyo, the Japan Cold Storage Company (Nippon Reizo KK), one of the big five fishing companies, plans to establish a subsidiary in Boston to be called the Tuna Products Corporation. The Japanese Government has authorized the necessary foreign exchange for the new firm, which will have an initial paid-up capital of \$100,000 and an authorized capital of \$1 million, according to a spokesman for the company.

Negotiations are now under way for the purchase of existing facilities in Boston. The firm will manufacture and market various newly-developed tuna products, such as "ham loaf" and "sausage" and other luncheon meats. These products are now being marketed in Japan and in taste and appearance are very similar to pork-containing products.

The director of the Japan Cold Storage explained to the Embassy

that the establishment of an American subsidiary grew out of the need for new markets for tuna and similar fish. He expressed confidence that a market for new tuna products could be developed in the U. S. and indicated that American tuna firms might eventually participate in the new venture.

Fishing Industry and Government Confer

Two conferences were held recently in Washington with Under Secretary of State Christian A. Herter to discuss problems of the American fishing industry.

On February 25, a delegation representing the shrimp interests of Gulf States met with the Under Secretary to discuss the shrimp boat seizure problem in the Gulf area.

On February 28, a delegation representing the entire American fishing industry met and included William Arnold, Alaska Salmon Industry, Inc.; Charles R. Carry, California Fish Cannery Association; W. M. Chapman, American Tunaboat Association; Charles E. Jackson, National Fisheries Institute; George Steele, National Cannery Association.

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Figure 5.—Dispatching a shark on the deck of the POFI vessel Charles H. Gilbert.

Sharks of the Central Pacific . . . Nuisance or Resource?

(Continued from page 7)

that sometimes the catches were composed only of males, and sometimes only of females. A splitting-up of the sexes in this way is probably related to breeding. Catches with a predominance of one sex were made in the spring but were most common in the summer. By winter males and females were equally represented in the catch. The great blues appear to have northern "pupping" grounds, the location of which is yet to be discovered.

The whitetip and the silky were mostly equatorial sharks, in fact the silky was only rarely taken outside of a 10-degree band on each side of the Equator. The silky was common near islands whereas the whitetip was more strictly oceanic (fig. 1). Both were guilty of feeding on hooked tuna, and on the average they damaged about 20% of the catch.

In some cases only a small chunk was bitten from the tuna, but more often most of the fish was consumed (fig. 2). Some of POFI's data suggest that both of these sharks may swim fast enough to catch a free-swimming tuna. For one thing both species of sharks are occasionally caught on trolling lines at vessel speeds of 6 to 8 knots, and for another, one bigeye tuna captured alive bore a pair of large U-shaped scars suspiciously resembling shark jaws in shape.

As can be seen from figure 3 the whitetip is a stout-bodied shark, and the silky has very similar body proportions. Most whitetips caught measured from 5 to 7 feet in total length, with their weight running from about 50 to 125 pounds. Silkies were usually about 7 feet long with weights of from 110 to 160 pounds. In contrast to these two species, the great blue is quite slender (fig. 4). The larger great blues averaged about 8 feet in length, but weighed only 125 pounds.

An idea of shark abundance can be obtained by comparing the catch-rates of sharks and yellowfin tuna. In the case of yellowfin a daily catch of six or more tuna per hundred hooks is considered commercially profitable. POFI's northern catches of sharks have run as high as 35 great blues per hundred hooks, and near the Line Islands (fig. 1) as great as 61 silkies per hundred hooks. Although these figures represent exceptional catches they nevertheless indicate that high seas sharks may be quite abundant.

In common with other tuna fishermen, POFI personnel were not trying to catch sharks. The hooks, bait, and lines were all designed to catch tuna, and fishing was done at depths and in regions where these fish were thought to be abundant. Nevertheless

the hungry sharks found the bait irresistible, and hooked themselves with no difficulty.

During periods of good tuna fishing there was little time for handling sharks, and many of those hooked were not brought aboard. In some instances the lines were cut and the sharks set free, while in others the animals were killed and discarded (fig. 5). In no case were sharks brought back to port for sale or processing. Markets for shark products (livers, fins, skin, and meat) exist in various parts of the world, but in Hawaii the limited demand is satisfied by imports.

Shark livers were formerly valued for their oil which is high in Vitamin A. Not only is this vitamin now synthesized artificially but its content tends to be low in tropical sharks; for these reasons the liver oil would probably not sustain a central Pacific shark fishery.

Shark fins and flesh are ingredients of shark fin soup and fish cake, both of which are widely consumed in Hawaii. In recent years, however, marlin and swordfish meat have replaced shark in fish cake, with the result that the Honolulu shark landings have fallen from an average of 21,000 pounds per year during 1944-53 to 200 pounds in 1954 and 12

pounds in 1955. With no sharks being landed, Hawaii-processed fins of course are no longer available.

Local fishermen report that shark numbers have increased since the fishing pressure was removed; this will probably result in more food fish being eaten by sharks and poorer fishing for both sport and commercial fishermen. We are, therefore, faced with the problem of controlling shark numbers to protect our sport and commercial fisheries, or, better yet, of devising some means of utilizing this potentially valuable resource to the benefit of us all. *

Tagged Yellowfin Tuna

Department of the Interior fishery research has disclosed that in at least one instance a yellowfin tuna—normally found near the surface—has taken to deepwater swimming in the open sea.

Late in 1955, a Fish and Wildlife Service research vessel tagged and released a troll-caught yellowfin tuna near Christmas Island in the mid-Pacific. Thirteen months later the same fish was recaptured by a Japanese fishing boat some 700 miles to the east and deep down in the ocean.

According to Fish and Wildlife Service officials, this is the first time a "surface-schooling" yellowfin has been known to have been taken as a deep-swimming fish in the open sea. The fish had grown considerably in the 13-month interval—from 55 pounds to 95 pounds.

The finding of this one yellowfin as a deep swimmer is not a conclusive item, fishery biologists say, but it does indicate a "vertical pattern of migration" not hitherto known.

Data relative to horizontal migration habits of the various tuna varieties is being slowly accumulated. Last year, an albacore was taken—15 months after tagging—2,670 miles away. It had gained 40 pounds in weight. Another one traveled more than 2,000 miles. Bigeye tuna have been known to migrate as much as 800 miles. Still another variety, the skipjack, has a much less pretentious travel record, one being caught only 30 miles away after 252 days while another went 40 miles in six days. Others just "hung around" and were

Faster Fishing?

Anyone for aerated smorgasbord? It is reported that Scandinavians are beginning to test compressed air to see if they can step up their annual herring catch.

The compressed air is being pumped underwater in perforated hoses in some deep Norwegian fishing grounds. Seems that the air tickles the herring, sends them darting off to more placid coastal waters where they're fair game for any man's shallow water tackle.

taken weeks later near the point of tagging.

Man's knowledge of sea dwellers is far short of his knowledge of land animals. For many reasons the migration patterns of fish are important not only to the biologist but to the fishing industry. But getting the migration pattern has been, and still is, a monumental task. In the first place it took a long time to develop tagging techniques which were not fatal to a high percentage of the fish tagged. It took time to develop the type of tags which would withstand the rigors of many months in the ocean water. Then, too, the ocean is wide and fish are numbered by the millions, and the odds of recapturing a tagged fish are not too high.

Tags and tagging techniques are improving and as more fish are tagged the odds of retaking some of them are better. Thus, little by little, fishery biologists are learning more about the ocean and the fish that dwell in it—and the recapturing of the surface-schooling yellowfin as a deep-swimming fish is another bit to be added to the information about the species, information which will be of value to those who seek these fish for the American table.

Tuna Clippers in Spain

The Spaniards are building four large clipper-type tuna-fishing vessels. They were ordered built by an important Spanish ship chandler to be used in the tuna fishing off the Canary and Azores Islands.

It is expected that the tuna caught by these vessels will be frozen and shipped to Italian canneries, according to Italian newspaper reports.

Hydraulic Mining in Old California

If you should happen to take a trip for yourself this coming spring or summer and should end up rolling around the roads in the Mother Lode Country, the roads that run north of Sacramento through Grass Valley, Nevada City, and the like, you'll probably run across the little old town of North San Juan and see nearby the great white holes that mark the spots where Columbia Hill and Badger Mountain used to stand.

To understand these great bleak holes, points out the National Automobile Club, you have to go back to the time of the Gold Rush and the strange fever that followed in its wake. When the prospectors and miners converged on California from all corners of the land, they soon discovered that the vein of gold that ran down the Sierra Nevada was one of the richest in the world. They also discovered that it could be very hard to find. Sending a shaft down here and a shaft down there, a man could spend his entire life digging holes and never coming across very much in the way of gold. The superstitious soon turned to divining rods and the more practical minded turned to the knowledge of the mining engineer. Neither of these did much to take the gambling out of mining with the shovel and shaft.

In something of anger and desperation men finally turned to hydraulic mining. Diverting whole rivers in their courses and pumping this water through great nozzles at enormous pressures, they turned whole mountains, such as Columbia and Badger, into rivers of slimy mud that surged down through the valleys. As the mud passed, they gathered the gold.

The rivers of mud, however, soon became so great that they buried rich pasture lands and farm country under layers of ooze. At this the ranchers and farmers got up in arms, fought with the miners and finally managed to have hydraulic mining banned in California in 1884. In recent years some hydraulic mining has been permitted in certain areas and under careful supervision.

The holes at North San Juan, however, are relics of a wilder day when wide-eyed men in search of gold could wash whole mountains right away.

Progress On Fishery Loans

Thirty-five loans, totaling \$1,196,330, have been approved under the fishery loan fund program up to February 4, 1957, reports Secretary of the Interior Fred A. Seaton.

More than 125 applications have been received, five of which were rejected. Other requests for loans for purposes not covered by the provisions of the law have been returned to the applicants.

Of the 35 applications approved, 18 were from the New England area; seven from the Pacific Coast, one from the South Atlantic Coast, one from the Gulf of Mexico, one from the Great Lakes, and seven from Alaska.

The largest loan to date is for \$250,000 to the Delta Towing and Transportation Company, Incorporated, of Pascagoula, Mississippi, for repairs, modernization and refinancing of menhaden vessels. The smallest is to William Estrada of Juneau, Alaska, who will receive \$1,500 for vessel replacement.

Loans approved for Pacific Coast applicants are: California:—Gestur R. Armann, Costa Mesa, \$6,000 for repairs and refinancing; Dorothy and Russell Farnell, Westminster, \$20,000 for repairs and refinancing; John E. Leanders, San Diego, \$79,900 for refinancing; M. Machado Medina, San Diego \$155,000 for refinancing; Katherine Tierheimer, Torrance, \$3,850 for vessel improvement; Joe E. Penacho, San Diego \$45,000 for refinancing; Washington:—Woodrow E. Anderson, Bellingham, \$8,873 for refinancing.

The Alaska loans, in addition to the one to Estrada, were: Leonard H. Redman, \$2,500; Edmund J. Krause, \$3,400; John E. Turner, \$4,000; R. A. Brandall, \$2,500; Roy A. Opheim, \$4,900; and Howard V. Rawley, \$2,000. Rawley lives in Ketchikan and all of the others live in Juneau. The loans were for vessel repairs, replacement of gear, and, in one case, for refinancing.

Approval or rejection of the loans is the responsibility of the Department of the Interior. The disbursement of the funds and servicing of the loans is handled by the Small Business Administration under an agreement with the Department of the Interior.

Applications for fishery loans as of March 18 totaled \$6,335,000 or nearly two-thirds of the \$10,000,000 made available for this purpose by the Fish and Wildlife Act of 1956, Assistant Secretary of the Interior Ross L. Leffler announced. He also reported that loans amounting to \$1,854,940 already have been approved.

Of the 163 applications accepted for processing, 66 were from New England for a total of \$2,207,000. Sixty-four are from Pacific Coast States for \$3,218,000 and the balance from other sections of the country and from Hawaii and Alaska.

Recently, the following loans not reported earlier have been approved for the Pacific Coast. California:—Donald Hobbs, San Diego, \$126,837

for refinancing and repairs; Edward P. Silva, San Diego, \$56,000 for refinancing. Washington:—Curtis Kirkendall, \$3,000 to repair vessel and replace gear; Lawrence P. Ollsen, \$17,200 for vessel and gear replacement; and Angus and Stella McKay, \$10,000 for refinancing and installation; Karl Kaldestad, \$10,000 for vessel improvements; Jacobson Bros., \$22,250, for basic research; and John McDermott, \$3,221 for refinancing and repairs. All of these are residents of Seattle, Wash. Frank O. Renlie, of Bellingham, received approval of a loan of \$4,500 for refinancing.

The Alaska loans were: William A. Grenier, Sr., Petersburg, \$7,500 for refinancing and repairs; Alfred J. Steear, Ketchikan, \$20,100 to rebuild and repair a vessel; Fred E. Brandes, Jr., Ketchikan, \$14,850 for refinancing and engine replacement; Adron F. Ward, Ketchikan, \$5000 for vessel improvement and repairs.

POFI Activities

The three research vessels of POFI are surveying the summer tuna fishery and bait potentialities of the Marquesas and Tuamotu Islands. In this "task force" approach to fishery biology, the *Hugh M. Smith* is studying the oceanic circulation of the area; the *John R. Manning* is sampling the deep-swimming tunas by longline fishing; while the *Charles H. Gilbert* is live-bait fishing and assessing the available natural bait supplies in those islands of French Oceania.

The *Manning*, using 60, 11-hook baskets per day, has fished a total of 33 days and reports a catch of 322 yellowfin, 35 skipjack, 48 big-eye, 24 albacore, 165 shark, and 56 miscellaneous such as marlin, swordfish, etc. Of the total yellowfin caught, 210 were taken at stations near the Marquesas, with the best day's catch yielding 54 yellowfin, 2 albacore, 16 shark, and 3 fish in the miscellaneous category.

The *Gilbert* reports sighting a total of 263 surface schools; 30 yellowfin, 128 skipjack, and 105 unidentified in the Marquesas. Using principally the local Marquesan sardines as bait, 104 of the schools were chummed and of those fished, a total of 2,829 skipjack and 81 yellowfin were caught. Seven hundred and sixty-nine of the skipjack were tagged with the new POFI dart tag and released. In

the Marquesas, one of the schools yielded 506 skipjack and another 455.

The *Gilbert's* reports indicate that, in general, the schools were wild and fast moving. On some days, several schools were sighted and chummed but the fish would not bite.

The concentration of bait varied from island to island. In one report from the Marquesas, 6,000 buckets were sighted near Taio Hae and, in another, 1,500 at Nuku Hiva. In other bays, varying amounts were observed; some with negligible quantities. However particularly when comparing with the quantities observed during the Marquesas winter, bait supplies were abundant.

The *Smith*, proceeding south along 130 deg. W., suffered a breakdown of the main drive shaft near 13 deg. S. Through assistance of the U.S. Coast Guard, repairs were effected and the vessel is now proceeding with the oceanographic survey.

Japan Increases Salmon Exports to U.S.

The short pack of canned salmon by the United States and Canada resulted in a strong demand for the Japanese pack and early estimates for 1956 exports to these countries of 535,000 cases (48 1-lb. cans), were revised upwards to 700,000 cases.

New Fishery Film

A new film designed to tell the story of the handling of fish from catching to serving, will be released by the Fish and Wildlife Service in April, states Assistant Secretary of the Interior Ross L. Leffler.

The film, *Fresh Out of the Water*, is 16mm., is sound and color and runs 14 minutes. It highlights the fact that it is the dietitians, diet specialists and the consuming public who "call the turn" on the fishing industry; that popular demand, competition with other protein foods, and modern machinery and processes have resulted in fishery products which are truly "fresh out of the water" despite time and distance from lake and sea to table.

Beginning with an underwater sequence, the film first shows the catching of fish, emphasizing the cleanliness of the fishing boats and the extreme care which is given fish from the moment of taking. The film then moves into a brief but comprehensive picture of what takes place before fish reach the consumer—the icing, freezing, filleting, canning, and other processing, the transporting and the marketing. Then it shows two

steps so important after the product is in the consumers' hands—the proper preparation of the food and, finally, serving it in an attractive manner.

To help promote the domestic fishing industry, copies of the film will be available on loan, without charge, at 140 film libraries which distribute fishery films. Further information relative to the picture may be obtained from the Fish and Wildlife Service, Department of the Interior, Washington 25, D. C.

Chemical Kills Algae

A new, safe way to stop ponds from turning green with algae in warm weather has been discovered by the Naugatuck Chemical Division, United States Rubber Company. A fungicide it has been supplying to fruit and vegetable owners is also an effective and economical algicide. It is trade named Phygon-XL.

The chemical is capable of holding down the growth or killing several types of algae, and also some water

weeds. If used when water temperatures are above 65 degrees fahrenheit and according to recommendations, it will not harm fish.

In California it was used successfully to control algae growth in some of the state's irrigation canals. It is estimated that between \$90 to \$150 per linear mile is now being spent to hold down algae and aquatic weed growth in these canals. (The cost of applying Phygon-XL was approximately \$8.50 per mile per treatment.)

In California it was also used on blue-green and green algae in a pond in the Los Angeles area that was stocked with rainbow trout and blue gill. One dose of the chemical stopped the algae for six weeks and had no effect on the fish.

When algae grows wildly, it becomes a nuisance in the ponds used for fishing, swimming, boating, or irrigation. But since this water growth is a form of fish food, it is rarely desirable to knock it out completely. In most cases emphasis is on holding the growth of algae below the nuisance level. Relatively small amounts of Phygon-XL are needed; it is a yellowish powder that mixes readily with water.



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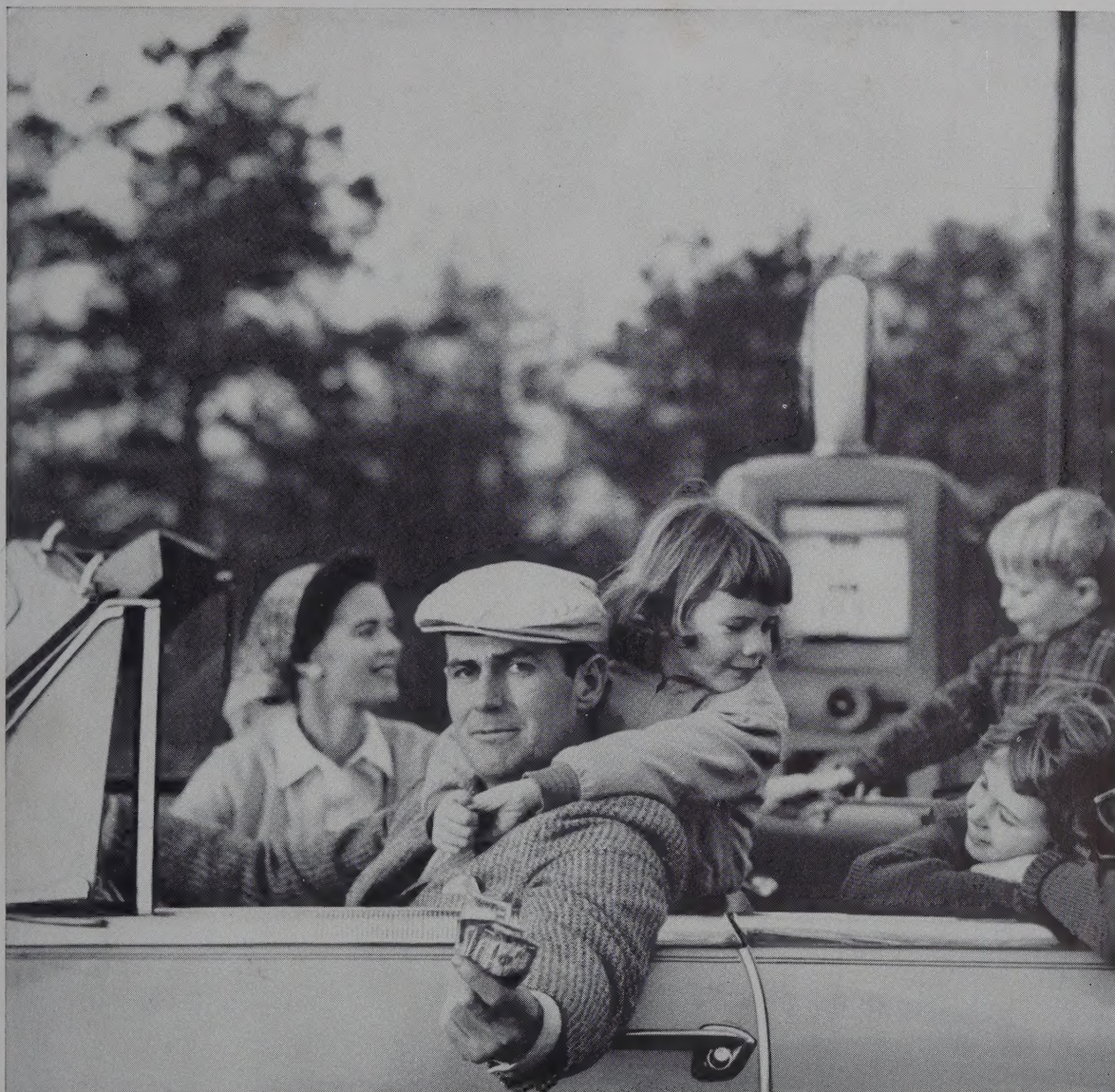


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MOST fishery interests agree that things are looking up for the future. Some of our most troublesome problems are being recognized and helpful solutions searched out—by both business and government authorities. You can read about them on other pages in this magazine.

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